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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,893	03/26/2004	Thomas Kolze	1875.4070002	7800

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STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.  
1100 NEW YORK AVENUE, N.W.  
WASHINGTON, DC 20005

EXAMINER
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FAROUL, FARAH

ART UNIT	PAPER NUMBER
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2616

MAIL DATE	DELIVERY MODE
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01/22/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/809,893

Applicant(s)

KOLZE ET AL.

Examiner

Farah Faroul

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-70 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7, 8, 22 and 23 is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-21, 24-50, 53-59 and 62-70 is/are rejected.
- 7) ☒ Claim(s) 51, 52, 60 and 61 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. The following Office Action is based on the amendment filed on October 16, 2007, having claims 1-70 and figures 1-8.

#### ***Information Disclosure Statement***

2. The information disclosure statement filed on January 9, 2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The foreign patent document EP 1024618 A2 has not been considered because applicant fails to provide an English copy of the abstract of the document.

#### ***Drawings***

3. The drawings are objected to because Figures 1, 2, 4A and 4C fails to provide a descriptive legend of the acronyms: CMTS, HFC, CM, SDRAM, and NCO. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be

canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Sheets" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37 CFR 1.121(d)(1). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

### ***Claim Objections***

4. Claims 16-23, 37-39, 41-45, and 47-50 are objected to because of the following informalities:

Claim 16 recites the phrase "adapted to" in lines 3, 5 and 8. It is suggested that applicant deletes the phrase to make the claim positive.

Claim 17 recites the phrase "adapted to" in line 2. It is suggested that applicant deletes the phrase to make the claim positive.

Claim 18 recites the phrase "adapted to" in line 2. It is suggested that applicant deletes the phrase to make the claim positive.

Claims 19-21 recite the phrase "adapted to" in line 2. Deletion of the phrase is required to render the claims positive.

Claim 22 recites the phrase "adapted to" in lines 3-4 and 7. Deletion of the phrase is required to render the claim positive.

Claim 23 recites the phrase "adapted to" in lines 3, 7 and 10. Deletion of the phrase is required to render the claim positive.

Claims 37 and 38 recite the phrase "adapted to" in line. Deletion of the phrase is required to render the claims positive.

Claim 39 recites the phrase "adapted to" in lines 3, 7, 9 and 14. Deletion of the phrase is required to render the claim positive.

Claims 41-45 recite the phrase "adapted to" in line 2. Deletion of the phrase is required to render the claims positive.

Claims 47-50 recite the phrase "adapted to" in line 2. Deletion of the phrase is required to render the claims positive.

Appropriate correction is required.

5. Claim 40 is objected to because it is dependent on succeeding claim 42.

A series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim.

A claim which depends from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to any preceding independent claim. In general, applicant's sequence will not be changed. See MPEP § 608.01(n).

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16-25 and 36-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 recites the limitation "receive a signal" in line 3. The limitation renders the claim vague and indefinite. The claim limitations later call for "a first signal" in line 6 and "a second signal" in line 9. If "a signal" in line 3 is different from the "first and second signals" in lines 6 and 9, the "signals" are required to be labeled "first, second and third signals" to render the claim definite. Otherwise, "a signal" in line 3, will need to be labeled as "a first signal" or "a second signal" to provide antecedent basis for the subsequent limitations.

Claims 17-25 and 36-38 are rejected for being dependent on a rejected base claim.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 16-18, 33-47, 55-56, and 63-68 are rejected under 35 U.S.C. 102(b) as being anticipated by Quigley et al. (2001/0055319 A1).

For claims 1-2, 16-17, 55 and 63, Quigley discloses receiving a first signal from the central entity and generating a symbol clock based on timing information included in the first signal (paragraph 9)

Upon a loss of reception of the first signal, maintaining the symbol clock (paragraph 132)

Receiving a second signal from the central entity and determining a symbol clock offset between the first signal and the second signal using the maintained symbol clock (paragraph 9); and

Adjusting the maintained symbol clock based on the symbol clock offset to provide an adjusted symbol clock and providing the adjusted symbol clock to a transmitter (paragraph 9)

For claims 3, 18, 45 and 56, Quigley discloses detecting a loss of the first signal prior to receiving the second signal wherein determining the symbol clock offset using the maintained symbol clock comprises incrementing a counter based on the

maintained symbol clock during the time period between the loss of the first signal and receipt of the second signal (paragraph 132)

For claims 25 and 54, Quigley discloses a cable modem (Fig 2, element 12)

For claim 39, Quigley discloses a central entity comprising a first transmitter to transmit a first transmitter signal wherein the first transmitter signal contains timing information based on a first central symbol clock (paragraph 9); and

A remote device (Fig 2, element 12) comprising a receiver to receive a first received signal wherein the first received signal is the first transmitter signal as received from the central entity (paragraph 9)

A clock generation element to generate a remote symbol clock based on the first received and maintain the remote symbol clock upon a loss of reception of the first received signal (paragraph 132); and

An offset determination element to determine a remote symbol clock offset between the first received signal and a second received signal using the maintained remote symbol clock (paragraph 9)

For claims 41 and 42, Quigley discloses an upstream timing element to adjust the maintained remote symbol clock based on the remote symbol clock offset to generate an adjusted remote symbol clock and remote device transmitter to receive the adjusted remote symbol clock (paragraphs 154-155)

For claims 33, 36, 40 and 64, Quigley discloses the second signal is the first signal from the central entity re-acquired after loss of reception (paragraph 140)



For claims 34, 37, 46, and 65, Quigley discloses incrementing a counter based on the maintained symbol clock during the time period between the loss of the first signal and receipt of the second signal (paragraphs 140 and 141)

For claims 35, 38, 47 and 66, Quigley discloses identifying a symbol clock offset value that obtains a valid packet alignment for the MPEG data in the second signal (paragraph 144)

For claim 43-44 and 67, Quigley discloses a second transmitter to transmit a second transmitter signal wherein the second transmitter signal contains timing information based on a second central symbol clock and a synchronization element to synchronize the first central symbol clock and the second central symbol clock (paragraph 9)

For claims 68, Quigley discloses the second received signal is the second transmitted signal as received from the central entity (paragraph 9)

For claim 70, Quigley discloses transmitting calibration information relating to a difference in FEC alignment between the first and second transmitted signals (paragraphs 146 and 352)

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4-6, 9-10, 19-21, 24, 26, 32, 48-50, 53, 57-59, 62, and 69-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quigley et al. (2001/0055319 A1) in view of Rakib (US 6,356,555 B1) (reference disclosed by applicant).

For claims 4, 19, 48 and 57, Quigley discloses the entire claimed invention except for determining the symbol clock offset using the maintained symbol clock comprises identifying a symbol clock offset necessary to obtain a valid alignment for forward error correction (FEC) decoding of the data in the second signal

Rakib, from the same or similar field of endeavor, teaches storing time information (column 46, lines 55-65), determining a clock offset for valid alignment for FEC (column 21, lines 44-54 and column 49, lines 17-24) and decoding transmitted data (see decoder 284 in Fig 11).

Thus, it would have been obvious to someone of ordinary skill in the art to combine the alignment method of Rakib with the communication network of Quigley at the time of the invention. The alignment method of Rakib is implemented into the communication network of Quigley by determining a valid alignment for decoding the

data. The motivation to combine the alignment method of Rakib with the communication network of Quigley is that it provides an efficient synchronization mechanism.

For claims 5, 20, 49 and 58, Quigley discloses the entire claimed invention except for determining the symbol clock offset using the maintained symbol clock comprises identifying a symbol clock offset necessary to obtain a valid puncture alignment for Trellis Code Modulation (TCM) decoding of the data in the second signal

Rakib, from the same or similar field of endeavor, teaches storing time information (column 46, lines 55-65), determining a clock offset for valid alignment for TCM (column 21, lines 44-54 and column 49, lines 24-34) and decoding transmitted data (see decoder 284 in Fig 11).

For claims 6, 21, 50 and 59, Quigley discloses the entire claimed invention except for determining the symbol clock offset using the maintained symbol clock comprises identifying a symbol clock offset necessary to obtain a valid frame alignment for Reed-Solomon decoding of the data in the second signal

Rakib, from the same or similar field of endeavor, teaches storing time information (column 46, lines 55-65), determining a clock offset for valid alignment for Reed-Solomon (column 21, lines 44-54 and column 49, lines 24-34) and decoding transmitted data (see decoder 284 in Fig 11).

For claims 9, 24, 53, 62 and 69, Rakib discloses receiving a notification message from the central entity indicating that the first signal will be terminated and wherein determining the symbol clock offset is performed responsive to receiving the notification

message and receiving the second signal (column 37, lines 39-57 wherein a notification message is sent from the transmitter prior to determining the clock offset)

For claims 10 and 26, Quigley discloses the entire claimed invention except for storing information associated with the timing information to provide delayed timing information and

For claim 10, Quigley upon termination of reception of the signal, accessing the delayed timing information to maintain the symbol clock (paragraph 132)

Rakib, from the same or similar field of endeavor, teaches storing time information (column 46, lines 55-65) and accessing timing delay information to maintain the clock symbol (column 21, lines 44-55).

For claim 32, Quigley discloses a cable modem (Fig 2, element 12)

9. Claims 11-15 and 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quigley et al. (2001/0055319 A1) in view of Rakib (US 6,356,555 B1) as applied to claims 10 and 26 above, and further in view of Grimwood et al. (US 6,243,369 B1).

For claims 11 and 27, Quigley and Rakib disclose the entire claimed invention except for storing the information associated with the timing information includes storing the information for a predetermined period of time

Grimwood, from the same or similar field of endeavor, teaches buffering timing information for a period of time (column 42, lines 3-5).

Thus, it would have been obvious to someone of ordinary skill in the art to combine the buffering method of Grimwood with the modified system of Quigley and Rakib at the time of the invention. The buffering method of Grimwood is implemented into the modified system of Quigley and Rakib by storing the timing information for a period of time. The motivation to combine the buffering method of Grimwood into the modified system of Quigley and Rakib is that it provides an efficient synchronization mechanism.

For claims 12 and 28, Quigley and Rakib disclose the entire claimed invention except for accessing the delayed timing information includes accessing the delayed timing information representative of a time period immediately before the termination of the reception of the signal

Grimwood, from the same or similar field of endeavor, teaches accessing the delayed timing information representative of a time period (column 51, lines 8-25).

For claims 13 and 29, Quigley and Rakib disclose the entire claimed invention except for accessing the delayed timing information includes accessing the delayed timing information representative of a time period ending at least one clock cycle before the termination of the reception of the signal

Grimwood, from the same or similar field of endeavor, teaches accessing the delayed timing information representative of a time period ending with at least one clock cycle (column 49, lines 33-40 and column 50, lines 13-21).

For claims 14 and 30, Quigley and Rakib disclose the entire claimed invention except for storing information associated with the timing information includes storing the

information received from at least one of a loop filter, a numerically controlled oscillator, and a voltage controlled oscillator

Grimwood, from the same or similar field of endeavor, teaches storing information received from a loop filter (column 50, lines 59-67)

For claims 15 and 31, Quigley and Rakib disclose the entire claimed invention except for analyzing the information associated with the timing information to determine when the termination of the reception of the signal occurs

Grimwood, from same or similar field of endeavor, teaches analyzing the timing information of the transmitted frames (column 51, lines 26-31).

#### ***Allowable Subject Matter***

10. Claims 7-8 and 22-23 are allowed.

11. Claims 51-52 and 60-61 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

12. Applicant's arguments with respect to claims 1-70 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bernath et al. (US 2001/0038647 A1) is cited to show a system pertinent to applicant's invention.

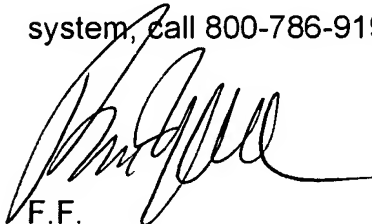
14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Farah Faroul whose telephone number is 571-270-1421. The examiner can normally be reached on Monday - Friday 6:30 AM - 4 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Firmin Backer can be reached on 571-272-6703. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



F.F.

**BRIAN NGUYEN**  
**PRIMARY EXAMINER**